USER'S MANUAL

BLOOD COLLECTION MIXER

Model CM735

No. CAT.CM73522Ce

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Important Notes

Power Source

The Blood Collection Mixer model CM735 is operated by either a battery pack or an AC power adaptor.

Caution

Do not put excessive weight on or push the tray downward in a forceful manner. (This avoids damage to the weight-sensitive device under the tray.)
Do not place weights over 2 Kg on the tray.

Battery Capacity

Turn power switch off to save the battery when the machine is not to be used for hours. If a machine, with a fully charged battery pack is left in but unused, the battery will be exhausted in about 15-20 hours. A machine with a fully charged battery can operate continuously for approximately 8 hours.

Battery Recharging

A low-voltage symbol flashes on the display panel and an alarm will sound when the battery voltage gets low. To recharge the battery, just plug the AC power adaptor in the rear panel jack, or take out battery and put it on the battery charger unit.

Cleaning Instructions

Use a soft cloth and mild detergent to clean the equipment. DO NOT use paint thinner, benzene, solvent or strong detergent.

Keeping

Avoid using or leaving the machine in a location where the temperature is higher than 122 °F (50 °C). Keep it away from any heating source or direct sunlight.

1. Scope

1-1. Features

- The Blood Collection Mixer CM735 provides efficient mixing of the blood with the anticoagulant in the blood bags.
- It is a lightweight mobile unit with maximum portability.
- The panel display indicates the net volume of blood collected in the blood bag. It automatically closes the tube clamp when the collected volume reaches the preset selected figure. The display shows the total weight on the tray at the end of the donation and elapsed collection time.
- Various audible and visual alarms are provided to ensure accurate and safe collection and mixing.

The mixing motion is controlled by a microcomputer. When the blood collection is started, the tray rocks for 3 cycles and pauses for 2 seconds, then resumes rocking. As the collection approaches the preset donation amount, the tray stops rocking to ensure an accurate donation. When the preset amount is reached, the clamp closes and tray resumes rocking.

The Blood Collection Mixer monitors blood flow rate during the collection and donation draw time. When the draw is less than 30 ml/minutes, the machine will alarm. The alarm is both audible and visual. The alarm repeats every 60 seconds if blood flow remains low.

The LCD panel displays pertinent information.
The following information can be viewed on the LCD:

- total weight [gram] of blood and blood bags
- collected volume [ml] of blood
- target volume to collect [ml]
- elapsed time [min : sec]
- low battery voltage condition
- unit of displayed figure ([ml] or [gram])
- alarming condition

The unit can be powered by either a battery pack or an AC power adaptor.
A Nickel-Cadmium battery pack of 12 Volts/2AH capacity is used. It is replaceable and rechargeable. An audible alarm sounds when battery voltage drops to its lower limit. The battery can be recharged while in the mixer or with a separate battery charger unit.

The battery can be recharged while the mixer is in use if the AC power adaptor is attached at rear panel jack of main unit. The battery can also be recharged by removing it from the mixer and connecting it to a separate battery charger unit.

(A large battery charger, model BC162, which charges 6 battery packs same time, is available for purchase from your distributor. With this charger, one pack among 6 is recharged fast in 3 hours, and other 5 packs in 10 hours.)

It takes about 10 hours to recharge a pack from exhausted level to fully charged level. A fully charged battery will operate the mixer continuously for approximately 8 hours.

The blood collection mixer unit can also be powered directly by using the AC power adaptor. When both a battery pack and a power adaptor are connected at the same time, the power adaptor supplies operating power and the battery is under recharging.

The tube clamp module can be positioned on either the left side or the right side of the tray. It can easily be remounted on either side of the tray by the user.

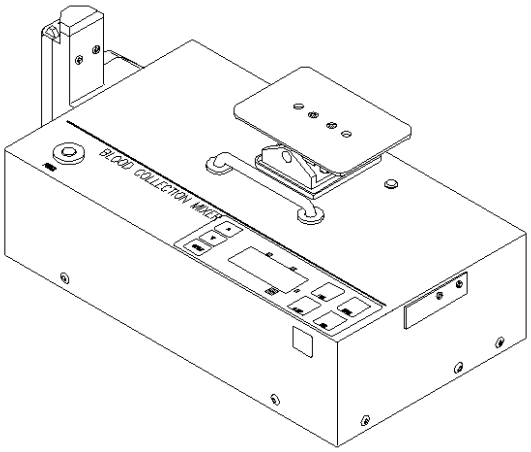
The equipment is stored in a soft carrying bag, and weighs less than 4 kilograms.

When the power switch is turned on, the machine requires 30 seconds to stabilize weight-sensing circuits. During this time the display shows a 30-second count down.

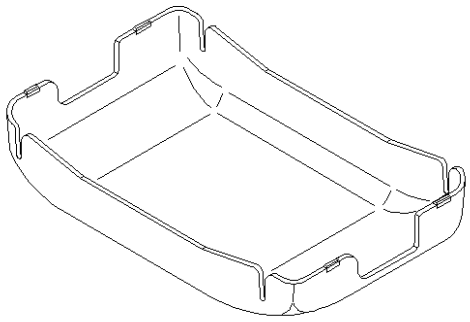
The Blood Collection Mixer is a unit designed with solid-state electronics and advanced technology.

1-2. Accessories included with each unit

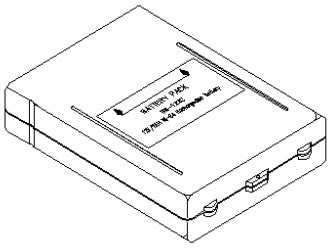
The Blood Collection Mixer CM735 includes the items shown below.
(Quantity - 1 each)



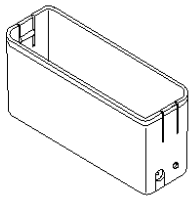
Collection Mixer Base



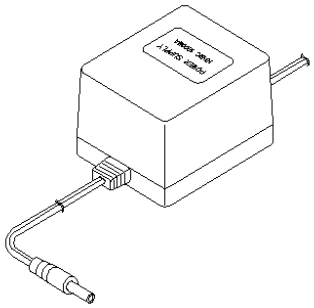
Collection/Weighing Tray



Battery Pack



Battery Charger Unit



AC Power Adaptor

And,

Carrying/Transportation Case
User's Manual

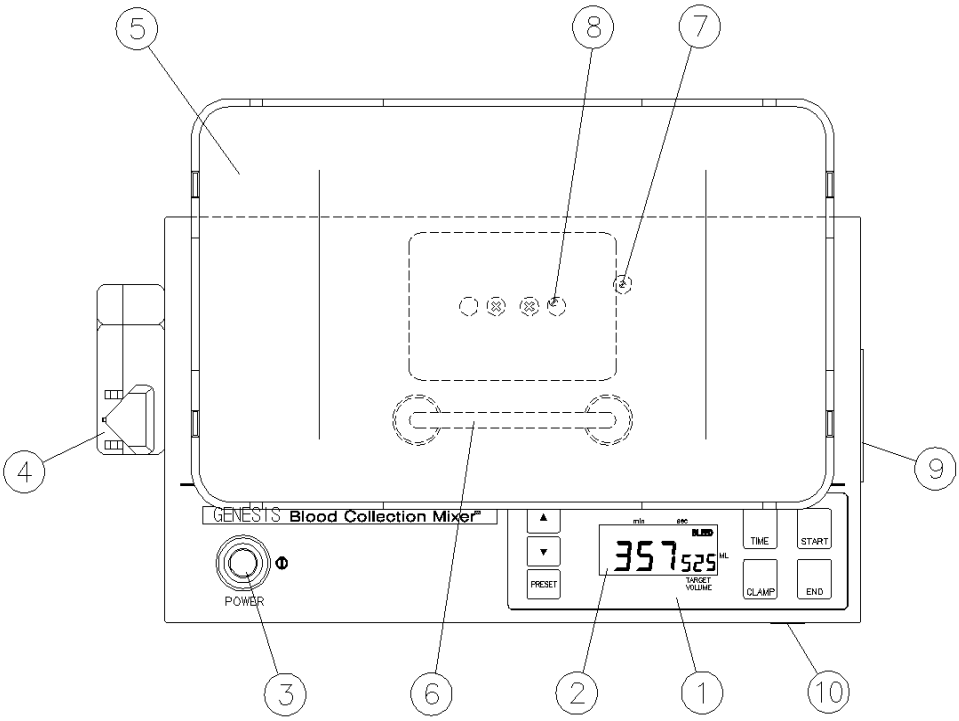
2. Specifications

a. Collection volume display ; 0 ~ 999 ml, with 1 ml increments
b. Total weight display ; 0 ~ 999 grams, with 1 gram increments
c. Elapsed time display ; 0 ~ 19 min 59 sec
d. Target volume set
    (1) Range ; 0 ~ 995 ml, with 5 ml steps
    (2) Set method ; up/down and preset buttons
    (3) Preset values (*1) ; 350, 400, 450, 500 ml
    (4) Default value (*1) ; 450 ml
e. Alarms (*2)
    (1) Low battery voltage ; audible, visual alarms at low battery voltage
    (2) Low flow rate ; audible, visual alarms at 30 ml/min or lower
    (3) Tray removal ; audible, visual alarms at tray removal
    (4) Long collection time ; beeps at 10 and 20 minutes after start
f. Tray moving
    (1) Speed ; 60 RPM speed nominal, with +/- 12.5 degrees
    (2) Motion mode ; 3 cycles moving - 2 seconds pause
g. Accuracy
    (1) Weight calibration tolerance ; +/- 1 gram
    (2) Decimal truncation error ; 1 gram/ml/sec maximum
    (3) Clamp closing time delay error ; 1 gram maximum
    (4) Collection volume accuracy ; - 0 ml to + 3 ml
    (5) Total weight accuracy ; - 0 gram to + 3 grams
    (6) Time display accuracy ; 1 second maximum
h. Controls ; POWER, START, END, TIME, CLAMP, PRESET, UP, DOWN
i. Indication panel ; custom-designed composite LCD display
j. Operating power source ; 12 volts DC battery pack or AC power adaptor
k. Battery pack ; Nickel-Cadmium rechargeable, 12 Volts DC/2AH
l. Power adaptor ; 220-240 VAC (*3), 50-60 Hz In, 18 VDC/1 Ampere Out
m. Battery charging ; by built-in charging circuit, or by separate charger unit
n. Power consumption ; 2 watts maximum
o. Dimensions ;
    Equipment 11.5 L x 8.0 W x 5.5 H inches
    29.2 L x 20.3 W x 14 H cm
p. Weight ;
    Equipment with battery 3.2 Kg (7.0 lbs)
q. Temperature characteristics ;
    Operating 0 ~ 40 ^{o}C (32 ~ 104 ^{o}F)
    Storage - 20 ~ 70 ^{o}C (- 4 ~ 158 ^{o}F)

Note : (*1) These figures may vary upon user's request.
(*2) Certain version doesn't have 10 & 20 minutes and/or tray removal alarms.
(*3) A power adaptor of 110-120 VAC input is available as necessary.

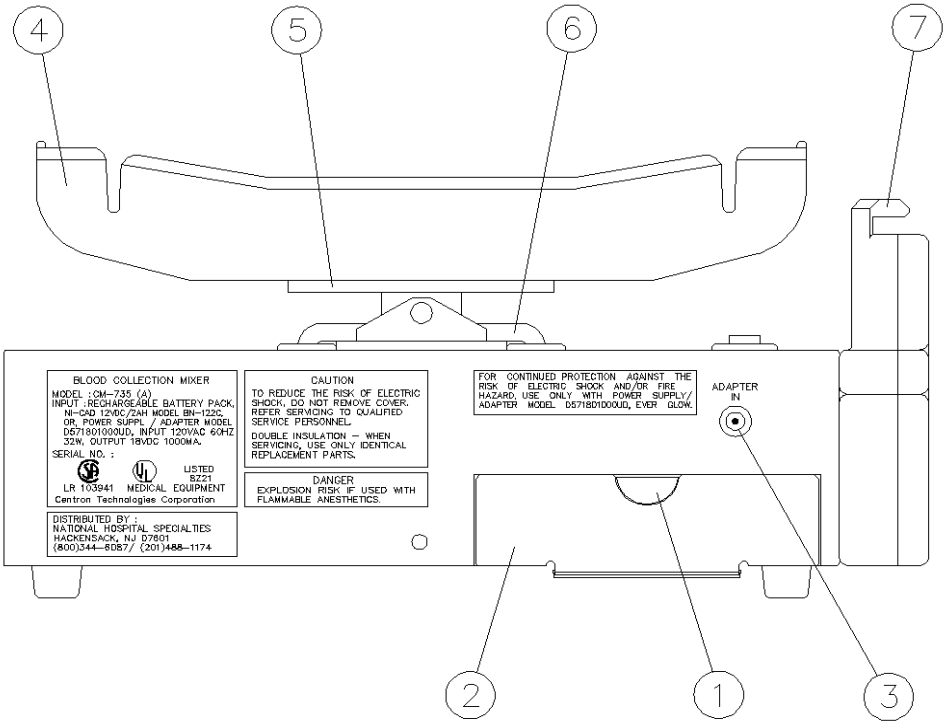
3. Views and Locations

3-1. Top View



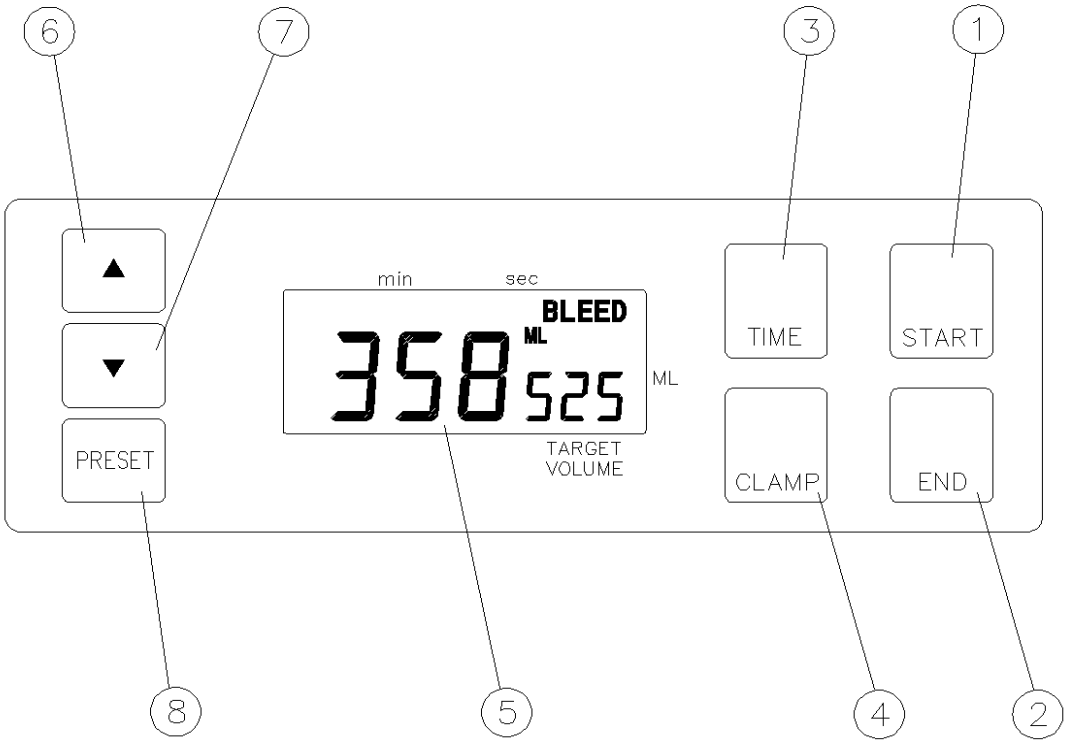
(1) Control Panel
(2) LCD Display Panel
(3) Power Switch
(4) Tube Clamp Module (now mounted at left side)
(5) Tray
(6) Handle
(7) Weight Calibration Hole
(8) Tray Leveling Screw
(9) Clamp Module Connection Hole
(10) LED lamp

3-2. Rear View


4
5
6
7
BLOOD COLLECTION MIXER
MODEL : CM-735 (A)
INPUT : RECHARGEABLE BATTERY PACK, NI-CAD 12VDC/2AH MODEL BN-1220, OR, POWER SUPPL / ADAPTER MODEL D57180100OUD, INPUT 120VAC 60HZ 32W, OUTPUT 18VDC 1000MA.
SERIAL NO. :
LISTED SZ21
LR 103941 MEDICAL EQUIPMENT
Centron Technologies Corporation
DISTRIBUTED BY :
NATIONAL HOSPITAL SPECIALTIES
HACKENSACK, NJ 07601
(800)344-8087/ (201)488-1174
CAUTION
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
DOUBLE INSULATION - WHEN SERVICING, USE ONLY IDENTICAL REPLACEMENT PARTS.
DANGER
EXPLOSION RISK IF USED WITH FLAMMABLE ANESTHETICS.
FOR CONTINUED PROTECTION AGAINST THE RISK OF ELECTRIC SHOCK AND/OR FIRE HAZARD, USE ONLY WITH POWER SUPPLY/ ADAPTER MODEL D57180100OUD, EVER GLOW.
ADAPTER IN
2
1
3

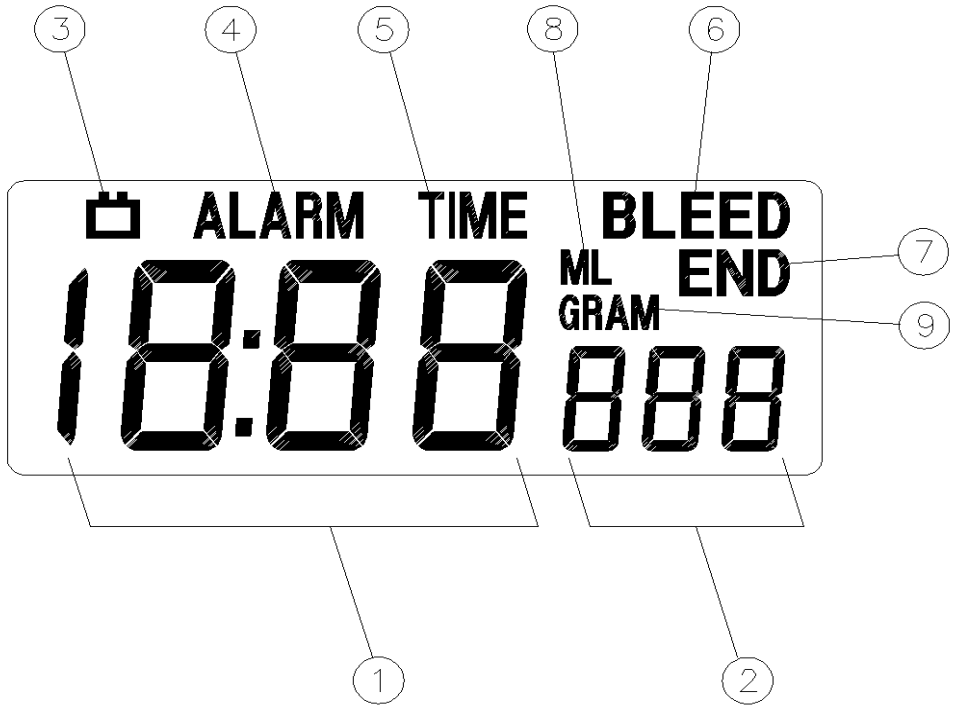
(1) Battery Pack
(2) Battery Compartment Door
(3) Power Adaptor Inlet
(4) Tray
(5) Tray Mount
(6) Handle
(7) Tube Clamp Module

3-3. Control Panel



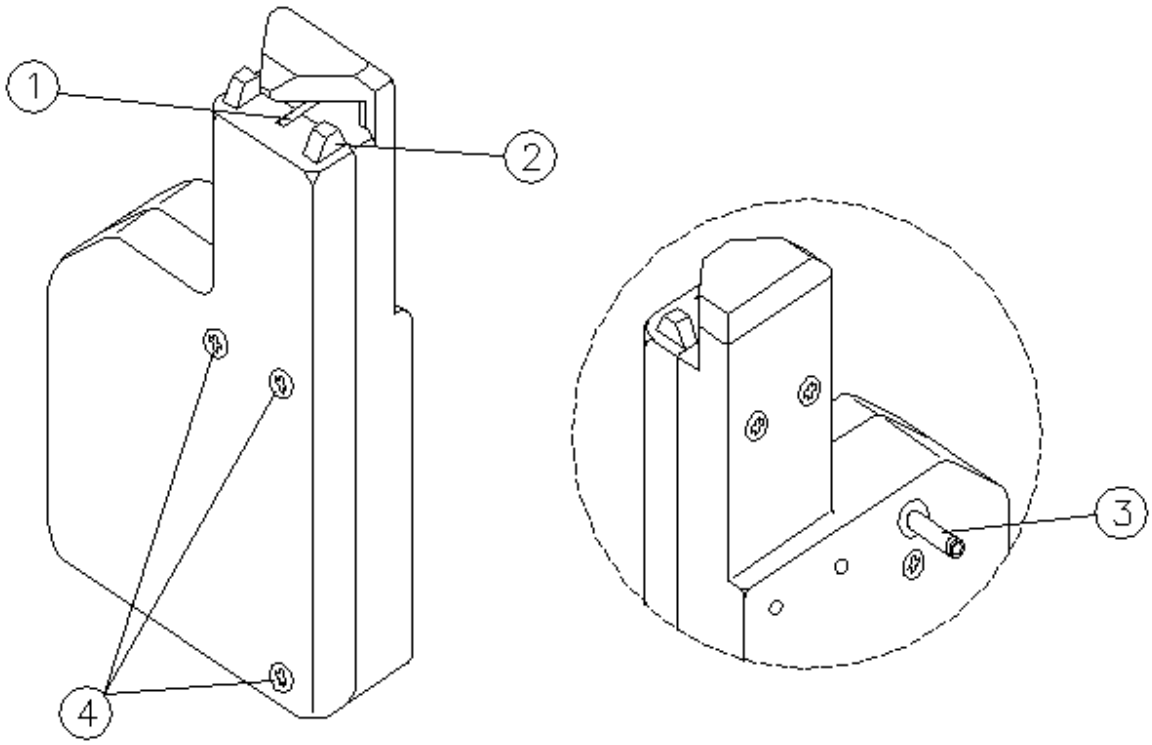
(1) [START] Switch
(2) [END] Switch
(3) [TIME] Switch
(4) [CLAMP] Switch
(5) LCD Display Panel
(6) [UP] Switch
(7) [DOWN] Switch
(8) [PRESET] Switch

3-4. LCD Display Panel



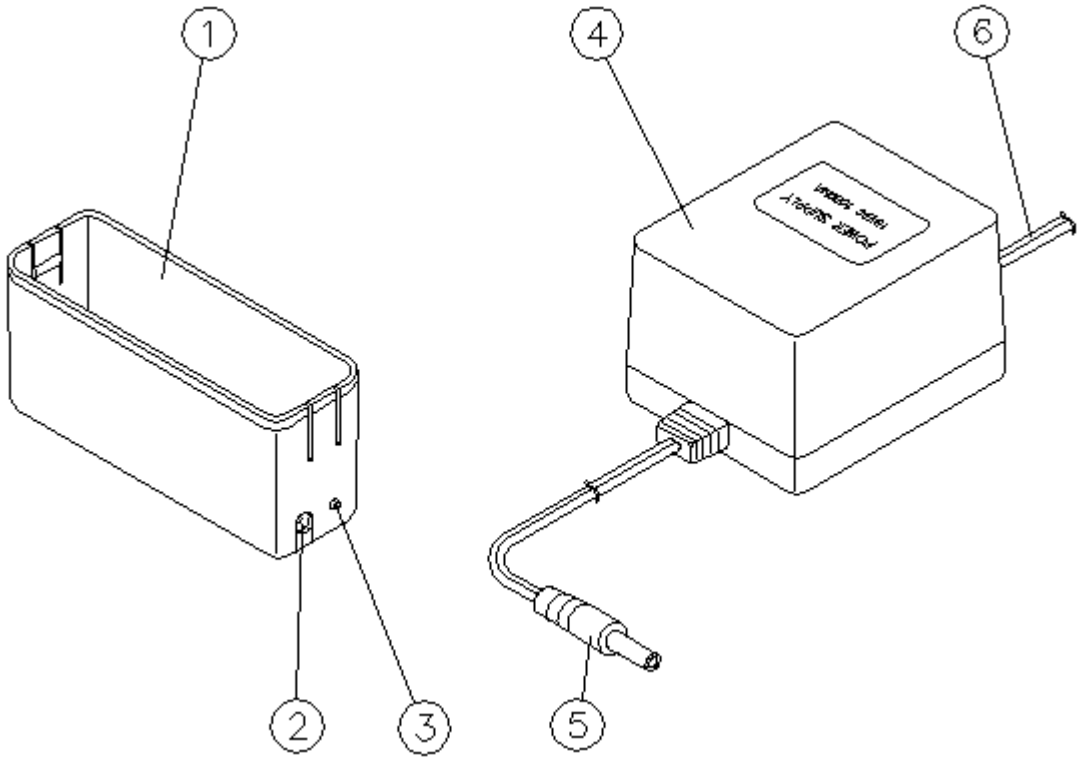
(1) Main Display (Volume/Weight)
(2) Preset Target Volume Display
(3) Low Battery Indicator
(4) [ALARM] Indicator
(5) [TIME] Indicator
(6) [BLEED] Indicator
(7) [END] Indicator
(8) [ML] Indicator
(9) [GRAM] Indicator

3-5. Tube Clamp Module



(1) Tube Clamp
(2) Guide Pin
(3) Connection Plug
(4) Mounting Screws

3-6. Battery Charger and Adaptor



(1) Battery Charger Unit
(2) Adaptor Inlet
(3) Charging Indicator Lamp
(4) AC Power Adaptor
(5) Output Plug
(6) AC Cord Plug

4. Functional Descriptions

[The figure in Section 3-1. Top View]

(1) Control Panel - has seven control switches and an LCD display panel.
(2) LCD Display Panel - is a custom-designed display panel on which all information is shown.
(3) Power Switch - turns the power on and off.
(4) Tube Clamp Module - is detachable, it can be mounted at either the left or right side of the tray. A screwdriver is necessary to move the module.
(5) Tray - is plastic molded on which blood collection bags are loaded. Tray should be detached when mixer is stored in the carrying/transportation case.
(6) Handle - is retractable.
(7) Weight Calibration Hole - In this hole is an adjustment screw to calibrate weight and volume as necessary.
(8) Tray Leveling Screw - makes the tray rotate.
(9) Clamp Module Connection Hole - is used when user wants to install the tube clamp module at the right side.
(10) LED Lamp - is illuminated when the power switch is on. The LED lamp starts flashing when collection volume reaches the preset volume at the end of normal collection process.

[The figure in Section 3-2. Rear View]

(1) Battery Pack - is rechargeable and replaceable Nickel-Cadmium 12 VDC/2 AH.
(2) Battery Compartment Door - is opened by placing a finger in the hole and pushing the door plate down.
(3) Power Adaptor Inlet - takes power directly from the AC power adaptor. When the adaptor is plugged in, it supplies power to the equipment and the battery pack will be recharged.
(4) Tray - is detachable. At the bottom of the tray attached is a magnetic pad, which sticks to the metal Tray Mount (5).

[The figure in Section 3-3. Control Panel]

(1) [START] Switch - starts collection process. Tray starts rocking, clamp is opened, main display shows collected blood volume in [ML].
(2) [END] Switch - completes collection process and returns machine to initial state. Tray stops rocking, main display shows total weight on the tray in [GRAM].
(3) [TIME] Switch - When depressed, it displays elapsed time of the collection. Time memory is cleared by pressing [START] switch to begin next collection.
(4) [CLAMP] Switch - opens and closes tube clamp. This switch does not work at the end of a normal collection until [END] switch is pressed.
(5) LCD Display Panel - shows all figures and symbols. Refer to the Section 3-4 for details.

(6) [UP] Switch - increases the preset target volume by 5 ml each time pressed.
(7) [DOWN] Switch - decreases the preset target volume by 5 ml each time pressed.
(8) [PRESET] Switch - recalls one of the numbers that were factory-set. If the preset numbers are 450 and 500 ml, the target volume displayed toggles as 500 - 450 - 500 - 450 - ... each time this switch is pressed. Power-on default figure is 500. These preset numbers and default figure may be changed upon user's request.

[The figure in Section 3-4. LCD Display Panel]

(1) Main Display - displays either total weight, blood volume or elapsed time. [ML], [GRAM] or [TIME] is displayed to indicate what is being displayed.
(2) Preset Target Volume Display - has three digits. This figure is controlled by [UP], [DOWN] or [PRESET] switch.
(3) Low Battery Indicator - is illuminated when battery requires recharging. Beep tone sounds when this symbol is first activated.
(4) [ALARM] indicator - is illuminated when an abnormal condition occurs, such as a slow draw. Refer to the Section 5-3 for details.
(5) [TIME] indicator - is illuminated only when the [TIME] switch is depressed. The main display shows the elapsed time in [min : sec].
(6) [BLEED] indicator - is illuminated while blood collection is in progress. When the [START] button is depressed, this indicator is on and [ML] is on too. This indicator goes off and [GRAM] is on when the [END] button is depressed.
(7) [END] indicator - is illuminated when the collection is completed. When the collected volume reaches the preset target volume, this indicator is illuminated. The tube clamp closes and beeps sound. The front LED lamp also flashes.
(8) [ML] indicator - is illuminated when the [START] button is depressed. It means the main display is now showing 'net' volume of blood collected in the blood bag in milliliters.
(9) [GRAM] indicator - is illuminated when the machine is not in collection process. It means the main display is now showing total weight loaded on the tray in grams.

[The figure in Section 3-5. Tube Clamp Module]

(1) Tube Clamp - presses blood bag tubing to stop blood flow. This clamp is opened and closed by [CLAMP] switch except at the end of a normal collection. The [END] switch must be pressed to indicate completion of the collection cycle, then [CLAMP] switch is enabled to work. The clamp is automatically opened when the [START] switch is pressed to start collection. It is automatically closed at the end of collection, or when the [END] switch is pressed.
(2) Guide Pins - keep the blood bag tubing in proper position.
(3) Connection Plug - is a circular connector.
(4) Screws - should be removed to move the module to the other side.

[The figure in Section 3-6. Battery Charger and Adaptor]

(1) Battery Charger Unit - is a power supply source to recharge the battery pack. The Output Plug (5) of the AC Power Adaptor (4) is plugged in the Adaptor Inlet (2).
(3) Charging Indicator Lamp - is on during recharging. If the battery is removed from the charger unit, the lamp will be off.
(4) AC Power Adaptor - converts the AC main line voltage to 18 VDC output.

5. How to Use Equipment

5-1. Preparation before Use

(1) Open carrying bag and unpack mixer, tray, battery and AC adaptor.

(2) Insert battery pack into the compartment and close the door.

To operate the equipment by AC power, plug the AC power adaptor in the inlet on the rear panel.

[Note 1] When both the battery and the AC power adaptor are connected together, the adaptor supplies operating power and the battery is under recharging.

(3) Put the tray onto tray mount.

(4) Empty the tray, then turn power on.

* The tray rocks once.
* LED lamp is lit.
* LCD panel displays '29' or '28', then it counts down to '0'.

[Note 2] If anything is put on the tray when power is turned on, it is tared at zero count. Tared weights must remain on the tray throughout the procedures. If any weight is removed, total weight will have an error of an equal amount.

(5) Wait for 30 seconds until main display registers '0'.

* [GRAM] appears to indicate the number displayed is weight in grams.

(6) Equipment is now ready to use.

5-2. Operating Procedures

(1) Set target collection volume with the [PRESET]-[UP]-[DOWN] buttons.

(2) Place blood collection bag on tray.

(3) Route blood collection bag tubing through tube clamp.

[Note 3] The tubing length from the clamping point to the blood bag should not be shorter than 30 centimeters (1 ft) to ensure proper rocking movement.

(4) Press [CLAMP] button to close tube clamp.

(5) Prepare phlebotomy site and stick donor.

(6) Press [START] button.

* Tube clamp is opened and the blood begins to flow into blood bag.
* Tray starts rocking.
* [BLEED] indicator is on.
* [ML] appears to indicate the number displayed is 'net' volume of blood collected in blood collection bag, represented in milliliters.

[Note 4] Weight of blood bags and anti-coagulant, and any weights put on tray are tared when [START] is pressed. All tared weights must remain on the tray until the collection cycle ends. If any weights are removed, blood volume will have an error of an equal amount.

[Note 5] Do not touch the tray or blood collection bags during the collection. If the tray is pushed down, sensed weight may exceed the preset target volume, then the clamp will close. When this happens, press [CLAMP] button to re-open the clamp and continue collection. **DO NOT** press [END] button, as it will clear the volume previously collected.

[Note 6] When the collected blood volume reaches 20 ml below the preset target volume, the tray stops rocking until the preset target volume is reached. This process assures accurate collection with a 1-2 ml tolerance. For example, if the target volume is set at 500 ml, the tray stops rocking at 480 ml and resumes rocking when the tubing is clamped at 500ml.

[Note 7] If blood flow rate is slow, lower than 30 ml per minute, and remains low for 1 minute, audible beeps will sound and the [ALARM] indicator will be activated. Check donor phlebotomy site to ensure blood flow is adequate. The beep will repeat once every minute until the flow is higher than 30 ml per minute.

When the collected volume reaches the preset target volume, the collection ends.

* The tube clamp closes.
* The tray resumes rocking.
* LED lamp starts flashing.
* The [END] indicator appears to show that the collection is finished.
* The [ML] indicator remains on to show the main display indicates the net volume of blood in milliliters.
* Beeps sound. The beeps will repeat once every 30 seconds until [END] button is pressed.
* The [CLAMP] button will not work until [END] button is pressed.

(7) Press [END] button.

* The tray stops rocking.
* The LED lamp stops flashing and remains lit.
* The [GRAM] indicator appears again to indicate the number displayed is total weight loaded on the tray, represented in grams.

[Note 8] Depressing [TIME] button displays donation draw time on main display.

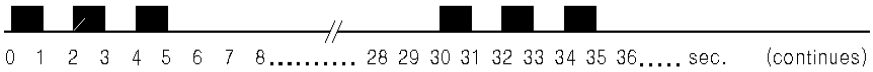
(8) Crimp blood bag tubing and remove phlebotomy needle from the donor.

(9) Press [CLAMP] button to open clamp and remove blood bags.

5-3. Audible Alarm Signals

Different audible alarms are generated by a buzzer to indicate that the attention of the phlebotomist is required.

A. End of normal collection:



----- activated when collection ends normally.
Follow Section 5-2-(7).
----- Three long beeps (1 second long each) each 30 second interval

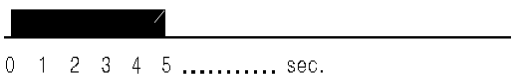
* Press [END] button. Beeps stop and LED lamp stops flashing.
* Crimp blood bag tubing and remove phlebotomy needle.
* Press [CLAMP] button to open clamp and remove blood bags.

B. Slow bleed:

----- activated when blood flow is slower than 30 ml/minute.
Refer to Section 5-2-[Note 7].
----- Five short beeps (once a second, half second long) each 1 minute interval

* Check needling and phlebotomy site to ensure flow is adequate.
* To continue collection, do not press any button. **DO NOT** press [END] button as it will clear the volume previously collected. Remove the reason of slow bleed.
* To end collection, press [END] button.

C. Low battery:



----- activated when battery is exhausted.
Refer to Section 5-4.
----- One very long beep (5 second long) only once

* Recharge the battery, or connect the AC power adaptor.

D. Tray removal:

----- activated when the tray is removed.
----- Beeps sound twice a second until power is turned off.

* Turn the power switch off.

E. 10 minutes passed:

----- activated when 10 minutes passed after the start of collection.
----- 20 rapid beeps (twice a second) only once for 10 seconds.

* Check needling and phlebotomy site to ensure flow is adequate.
* To continue collection, do not press any button. **DO NOT** press [END] button as it will clear the volume previously collected.
* To end collection, press [END] button.

F. 20 minutes passed:

----- activated when 20 minutes passed after the start of collection.
----- Very rapid beeps (four beeps a second) continue.
----- Tube clamp closes.

* Check needling and phlebotomy site to ensure flow is adequate.
* To continue collection, press [CLAMP] button to open the clamp.
* To end collection, press [END] button.

[Remark]

Certain version of the blood collection mixer doesn't have 10 and 20 minutes alarms and/or tray removal alarm.

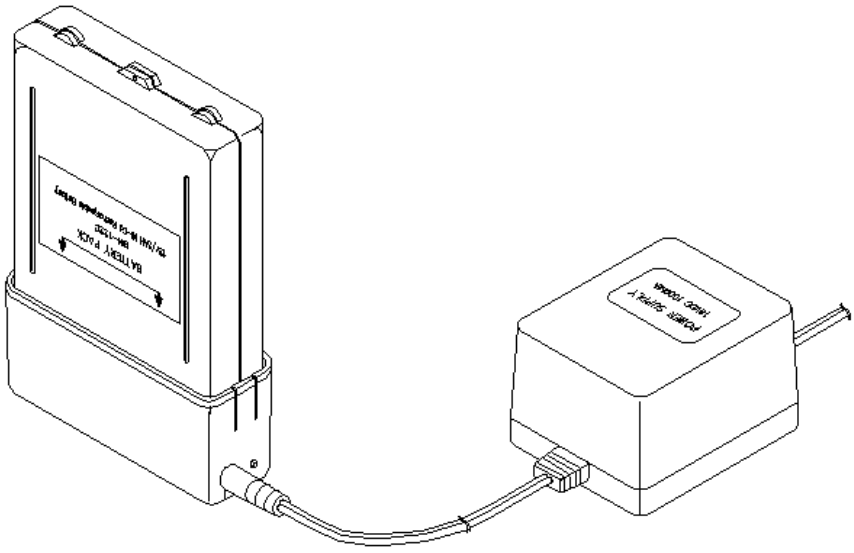
5-4. Recharging the Battery

The battery pack can be recharged in two ways. It can be recharged in the mixer unit, or with the battery charger unit included.

Recharging the battery pack while still in equipment

(1) Plug the AC power adaptor into the jack on the rear panel of the main unit.
(2) Plug the AC cord plug into a wall outlet.
(3) Leave plugged in for several hours. Battery will take about 10 hours to fully recharge from a low voltage indicator.
* Battery is recharged even if equipment power switch is in OFF position.

Recharging the battery pack with the battery charger unit



(1) Plug the AC power adaptor into the jack on the battery charger unit.
(2) Plug the AC cord plug into a wall outlet.
(3) Put the battery pack in the charger unit. The charging indicator lamp will be lit.
* Battery pack doesn't have polarity. Any direction of installation will be good.
(4) Leave plugged in for several hours. Battery will take about 10 hours to fully recharge from a low voltage indicator.
(5) Unplug the AC cord plug and disconnect battery from charger unit after 10 hours.

[Note 1] Recharging a battery for more than 10 hours is not harmful to the battery or any circuit.

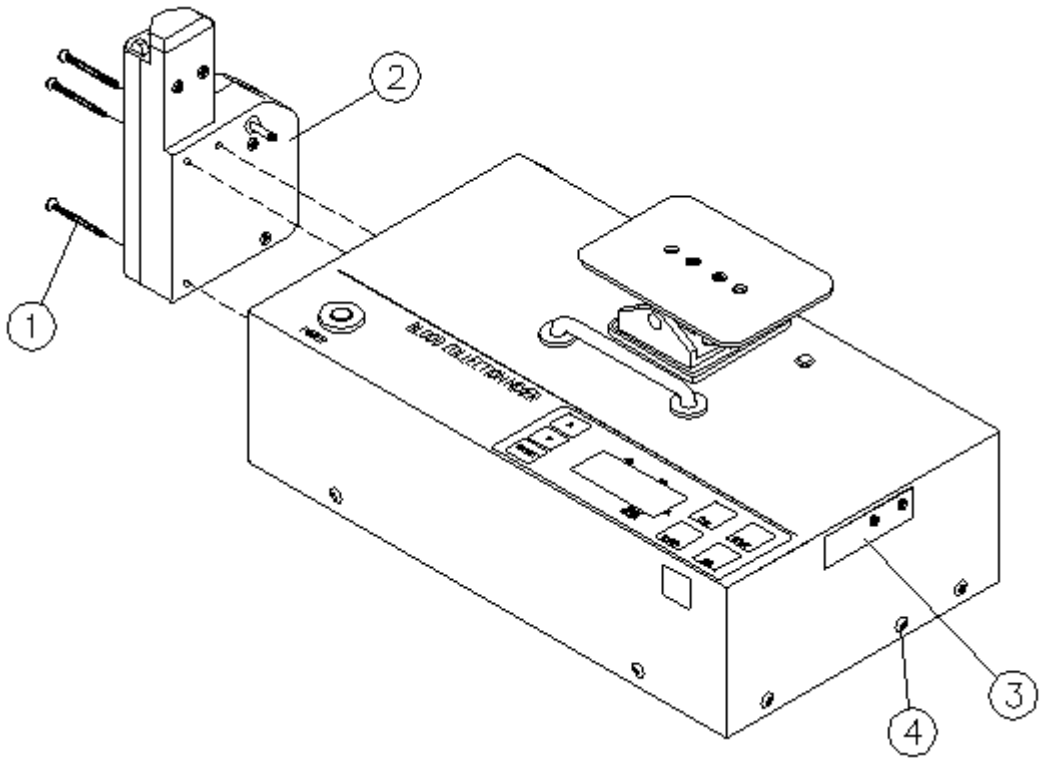
[Note 2] The expected lifetime of a rechargeable battery is about 6 months to 2 years. If operation time is apparently reduced, or if nothing is displayed on the LCD panel when the power switch is turned on, the battery pack may be worn out or have permanent damage. Replace with a new battery pack. Contact your distributor for spare battery packs.

[Note 3] A multi-unit battery charger, model BC162, is available for purchase. The features of BC162 charger are;

- Six battery packs are recharged same time.
- One bay gives fast charging, so one pack can be recharged in about 3 hours. The other five bays give standard charging, which takes 10 hours.
- One bay of this battery charger can be converted to make discharging by intentionally activating a push button switch. This feature is to be used to refresh the battery pack by clearing built-up memory in the pack.

5-5. Moving the Clamp Module

The tube clamp module is detachable and users can change its mounting place either to the left or to the right side of the mixer.



(1) Turn power switch off.
(2) Remove the three screws (# 1), and pull out the clamp module (# 2).
(3) Remove the two screws on the side panel (# 3) and the one screw (# 4).
(4) Install the clamp module with three screws.
(5) Assemble the side panel and screws.

6. Maintenance

6-1. Troubleshooting

User maintenance is limited to battery charging, cleaning, calibration and tray leveling. The following table covers common problems and suggested solutions:

Symptom	Likely Cause	Solution
Power switch is on, but no display comes on.	Exhausted battery	Recharge battery as per Sec. 5-4.
	Damaged battery	Refer to [Note 2] in Sec. 5-4.
	Equipment malfunction	Ask service. Call your distributor.
Low battery indicator flashes.	Exhausted battery	Recharge battery as per Sec. 5-4.
A battery pack doesn't support 8 hours operation.	Damaged or worn-out battery	Recharge the battery again. Refer to [Note 2] in Sec. 5-4.
Power adaptor doesn't work.	Bad power adaptor	Check it by plugging it in main unit and then in charger unit. Ask service for the power adaptor.
Charging indicator lamp is not lit when battery is installed in the charger unit for recharging.	Bad battery contact due to dirt or corrosion, or battery/charger/adaptor may be bad.	Inspect and clean any dirt or corrosion at contacts on battery pack and springs on charger unit. Ask service as required.
Clamp doesn't work, but main unit works good.	Bad tube clamp module	Move the clamp module to the other side as per Sec. 5-5, and check again. If it doesn't work, ask service for the clamp module. If it works, ask service for all.
Beeps sound.	Care needed	Refer to Sec. 5-3.
Measurement is out of tolerance.	Short tubing between clamp and blood bag	Give more tubing length. Refer to [Note 3] in Sec. 5-2.
	Out of calibration	Make calibration as per Sec. 6-2.
Tray is unlevel.	Sensing point moved	Make adjustment as per Sec. 6-3.

Other problems should be corrected by authorized service personnel.
Contact your distributor for service.

6-2. Calibration

Designed tolerance of weight measurement is +/- 1 gram. For example, if a standard weight of 500 grams is put on the tray, the display should show a figure between '499' and '501'. Otherwise, the equipment may be subject to calibration by users.

Checking accuracy of weight measurement

(1) Prepare a known weight of about 500 grams.
(2) Turn power on and, after 30 seconds stand-by, put the weight on tray.
Do not touch the equipment and table during count-down.
(3) If the display is out of 'the known weight +/- 1', follow the procedures below.

Calibrating the equipment for weighing accuracy

(1) Prepare a small size flat (-) tip screwdriver, 2-3 mm (1/16-1/8") in diameter.
(2) Turn power off and remove the tray.
(3) Remove the hole plug and locate a screw in the top panel (# 7 in Section 3-1).
(4) If the measured figure was smaller than the known weight, turn the screw clockwise (CW), by about 1/8 of a turn (45 degrees).
If the measured figure was bigger than the known weight, turn the screw counter-clockwise (CCW), by about 1/8 of a turn (45 degrees).
* Turning it CW will increase displayed figure, and CCW will decrease display.
(5) Install the tray and follow the accuracy check procedures above.
(6) If the equipment is still out of tolerance, repeat from (2) to (5) again.
If the equipment is now in tolerance, replace the hole plug.

[Note 1] The calibration screw is a potentiometer working very sensitive. Do not turn the screw more than a quarter turn at one cycle of calibration. The screw adjustment should be done while the power switch is being turned off.

[Note 2] Designed tolerance of blood volume measurement of the net collected blood in blood bag is - 0 to + 3 milliliters. For example, if the preset target volume is set at '500', it's normal that the net collected blood volume comes between 500-503 ml.
But there exist two factors that may change the result.
1) The equipment measures weight only. Blood volume is calculated from blood weight, divided by specific gravity of blood. If the specific gravity of a donor's blood is different from the set figure, it will result some error (about 1-2 ml).
2) If the tubing length between clamping point and blood bag is changed, or if it is not free, it may push or lift the tray more or less. To minimize this type of error, the tube length should be longer than 30 cm. Refer to [Note 3] in Section 5-2.

6-3. Leveling the Tray

Tray leveling is ensured by a magnetic position sensor and precision mechanism. After long use for years, the tray might become unlevel. Leveling of the tray can be simply adjusted by users.

(1) Prepare a flat (-) tip screwdriver, 3-5 mm (1/8-3/16") in diameter.
(2) Turn power off and remove tray from tray mount (# 5 in the figure in Section 3-2).
(3) Identify the tray leveling screw (# 8 in the figure in Section 3-1) through the hole.
(4) Turn the screw clockwise, by about a half turn (180 degrees), to make the tray rotate clockwise. The tray will rotate clockwise by a half degree.
Turn the screw counter-clockwise, by about a half turn (180 degrees), to make the tray rotate counter-clockwise. The tray will rotate CCW by a half degree.
(5) Replace the tray and turn power on.
(6) Check tray leveling. If tray is not level, repeat from (2) to (5) again.

6-2. Service Call

If the equipment does not operate properly, or if you need assistance, contact your distributor or the manufacturer: